

### **REMARKS**

Reconsideration of this application is respectfully requested. Claims 1-5, 7 and 8-10 are pending and claims 3-5 and 8-11 are currently at issue.

#### **Examiner Interview**

A telephone interview with the Examiner in charge of this case was held on November 18, 2009. The opportunity to interview with the Examiner is greatly appreciated. During the interview, the Examiner agreed that Japanese patents JP 60-251121 ("the '121 patent") and JP 61-58812 ("the '812 patent") do not appear to teach the use of an alkaline earth metal during the hydrothermal treatment step. However, the Examiner did point out that U.S. Patent No. 4544,793 ("the '793 patent"), which is the equivalent of Japanese patent JP 59-097523 ("the '523 patent") did appear to have an alkaline earth metal during the hydrothermal treatment step of forming a zeolite catalyst. The Examiner pointed out that this reference might be the basis of a new rejection and invited a Supplemental Response in order to point out distinctions between the '793 patent and the present claims. The response regarding the '793 patent is outlined below.

In addition, the Examiner stated that in the event a new rejection is made and an Office Action is issued, the Action would not be a Final Office Action.

#### **The '793 Patent**

While the '793 patent is directed toward a method of making a zeolite catalyst having an alkaline earth metal present during the hydrothermal treatment step, the '793 patent does not anticipate the present claims for at least the reason that the '793 patent does not disclose the use of a seed crystal. The '121 patent also fails to disclose a seed crystal. However, the '812 patent does disclose a seed crystal.

Therefore, it is anticipated that any new rejection from the Examiner would be an obvious rejection of claims 3-5 and 8-11 over the process of the '793 patent in view of the teaching of the use of a seed crystal in the '812 patent. The Examiner would likely argue that it would have

been obvious to a person of ordinary skill in the art to use the seed crystal disclosed by the '812 patent in the process taught by the '793 patent.

**A person of ordinary skill in the art would not have been motivated to use a seed crystal in the process taught by the '793 Patent**

The '793 patent describes a process for obtaining a zeolite catalyst having a high alkaline earth metal content by incorporating the alkaline earth metal into the hydrothermal treatment step of the zeolite forming process (See, column 2, line 6 to column 2, line 13 of the '793 patent).

In the Official Action dated May 27, 2009, the Examiner contended that it is well known in the art of zeolite synthesis to employ seed crystals in order to produce final compositions having crystals of consistent and desired particle size. While a person of ordinary skill in the art may have been motivated to use seed crystals in order to obtain a zeolite catalyst of consistent and desired size, a person skilled in the art would not have been motivated to use a seed crystal in the process taught by the '793 patent. The '793 patent teaches a method of obtaining a zeolite catalyst with a high alkaline earth metal content, therefore, a person of ordinary skill seeking a zeolite catalyst with a high alkaline earth metal content would not have been motivated to employ the seed crystal taught by the '812 patent because the seed crystal of the '812 patent does not itself contain an alkaline earth metal.

In fact, the '793 patent teaches the difficulty of obtaining zeolite catalysts with traditional techniques (See, column 1, line 56 to column 2, line 5 of the '793 patent). At the time the present application was filed, a person skilled in the art would have had no reason to expect that a zeolite crystal formed from the '793 process, a process having an alkaline earth metal during the hydrothermal treatment step, would form a zeolite catalyst having a consistent distribution of alkaline earth metal throughout the crystal. A person skilled in the art would have had no reason to believe that the alkaline earth metal present during the hydrothermal treatment step would penetrate into the interior of the seed crystal and provide a consistent distribution of alkaline earth metal throughout the zeolite. Therefore, a person of ordinary skill in the art would have not been motivated to employ a seed crystal without a consistent distribution of an alkaline earth metal into a

process taught to create zeolite crystals with alkaline earth metal content because they would have believed that the zeolite catalyst they obtained from this process would lack alkaline earth metal in the catalyst core, the same problem the '793 process was seeking to avoid.

**Even if the '812 seed crystal were used in the '793 process, it would not produce the zeolite catalyst produced by the present claims.**

The '812 patent discloses a seed crystal made of HZSM5, having low Si/Al<sub>2</sub> ratio and small particle size. The seed crystal core is allowed to grow until the particle size thereof becomes approximately 0.5  $\mu\text{m}$ , thereby synthesizing atomized zeolite (See page 4, left-lower column, lines 1 to 3 of the '812 patent).

Therefore, by using the seed crystal formed from the process described by the '812 patent in the '793 process, a zeolite having unevenness in density of alkaline earth metal, for example calcium, would be obtained.

**CONCLUSION**

For the foregoing reasons claim 3 of the present invention is not obvious in view of the combined teachings of the '793 patent and the '812 patent. Claims 4 and 5 depend from claim 3 and are therefore also not obvious over the combination of the '793 patent and the '812 patent. The Examiner is therefore respectfully requested not to reject claims 3-5 and 8-11 for obviousness over the '793 patent in view of the '812 patent.

In view of the preceding comments, the pending claims are believed to be in condition for allowance and such action is earnestly solicited.

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Respectfully submitted,

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